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John T. Pienkos, Reg. No. 42,997

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): David Charles Schwartz, *et al.*
Serial No.: 10/688,416
Filed: October 17, 2003
For: Micro-Channel Long Molecule Manipulation System
Docket No.: 960296.00129

INFORMATION DISCLOSURE STATEMENT

This paper is being presented for filing in the above case pursuant to Rules 97 and 98 of the Rules of Practice.

Four sets of Forms PTO/SB/08A "Information Disclosure Statement by Applicant" are attached. The first set of Forms PTO/SB/08A lists newly-cited references, and copies of the references are enclosed.

As for the remaining three sets of Forms PTO/SB/08A, these respectively list references that were cited during the prosecution of three patent applications of which the present Application claims the benefit, namely, U.S. patent application Nos. 09/962,802 (now U.S. Patent No. 6,610,256); 08/855,410 (now U.S. Patent No. 6,294,136); and 08/415,710 (now U.S. Patent No. 5,720,928). The Applicants respectfully submit that, pursuant to 37 CFR 1.98(d), no copies of the references listed on these Forms PTO/SB/08A need be submitted to the Patent Office.

No additional fees for filing this paper are believed to be due. However, the Commissioner is hereby authorized to charge any additional fees due or to credit any overpayment to deposit account no. 17-0055.

Respectfully submitted,

DAVID CHARLES SCHWARTZ, *et al.*By: 

John T. Pienkos

Reg. No. 42,997

Attorney for Applicant

Quarles & Brady LLP

411 E. Wisconsin Avenue

Milwaukee WI 53202-4497

(414) 277-5777



Application Number	10/688,416
Filing Date	October 17, 2003
First Named Inventor	David Charles Schwartz
Art Unit	
Examiner Name	
Attorney Docket Number	960296.00129

INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(Use as many sheets as necessary)</i>		Complete if Known	
		Application Number	10/688,416
		Filing Date	October 17, 2003
		First Named Inventor	David Charles Schwartz
		Art Unit	
		Examiner Name	
Sheet 2	of 2	Attorney Docket Number	960296.00129

OTHER PRIOR ART–NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
		Chih-Ming Ho, "Fluidics - The Link Between Micro and Nano Sciences and Technologies", Proceedings of the IEEE 14th Annual International Conference On Microelectro Mechanical Systems. MEMS 2001. Interlaken, Switzerland, Jan 21-25,	
		2001, IEEE International Micro Electro Mechanical Systems Conference, New York, NY: IEEE, US, vol. CONF. 14, (01-21-2001), pgs 375-384, XP010534628 ISBN: 0-7803-5998-4, pg 378-379	
		Unger M A Et Al: "Monolithic Microfabricated Valves and Pumps by Multilayer Soft Lithography", Science, American Association For The Advancement Of Science, US, vol. 288, 04/07/2000, pgs. 113-116, XP002192277 ISSN: 0036-8075 Figure 1.	
		Stix, Gary; "Thinking Big-A Harvard Medical School dropout aims to usher in the personal-genomics ear," Innovations, Scientific American, June 2002, pgs. 30-31.	
		Stikeman, Alexandra, "Nanobiotech Makes The Diagnosis," Technology Review, May 2002, pgs. 61-66.	

Examiner Signature	Date Considered
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Prior art cited in U.S. Patent No. 6,610,256

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Substitute for form 1449/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 1 of 7

Complete if Known

Application Number	10/688,416
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First Named Inventor	David Charles Schwartz
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Examiner Name	
Attorney Docket Number	960296.00129

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code ² (if known)			
		US- 4,473,452	Sep., 1984	Cantor et al.	
		US- 4,695,548	Sep., 1987	Cantor et al.	
		US- 4,737,251	Apr., 1988	Carle et al.	
		US- 4,767,700	Aug., 1988	Wallace	
		US- 4,870,004	Sep., 1989	Conroy et al.	
		US- 5,059,294	Oct., 1991	Lizardi	
		US- 5,079,169	Jan., 1992	Chu et al.	
		US- 5,314,829	May, 1994	Coles	
		US- 5,380,833	Jan., 1995	Urdea	
		US- 5,405,519	Apr., 1995	Schwartz	
		US- 5,599,664	Feb. 1997	Schwartz	
		US- 5,720,928	Feb., 1998	Schwaratz	422/186
		US- 5,985,549	Nov., 1999	Singer et al.	435/6
		US- 6,147,198	Nov., 2000	Schwartz	
		US- 6,150,089	Nov., 2000	Schwartz	
		US- 6,294,136	Sep., 2001	Schwartz	422/186
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FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T ⁶
		Country Code ³ Number ⁴ Kind Code ⁵ (if known)				
		FR 2605472	Apr., 1988	Alain Bouillet		
		WO 84/02001	May, 1984	Trustees of Columbia Univers		
		WO 87/01955	Sep., 1987	Washington University		

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		Allison et al., 1992, "Immobilization of DNA for Scanning Probe Microscopy", Proc. Natl. Acad. Sci. USA 89: 10129-10133.	
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		Bustamante et al., 1992, "Circular DNA Molecules Imaged in Air by Scanning Force Microscopy", Biochemistry 31: 22-26.	
		Campbell et al., 1991, "Generation of a Nested Series of Interstitial Deletions in Yeast Artificial Chromosomes Carrying Human DNA", Proc. Natl. Acad. Sci. USA 88: 5744-5748.	
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		Chattoraj et al., 1978, "DNA Coordination with Polyamines", J. Mol. Biol. 121: 327-337.	

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		Application Number	10/668,416
		Filing Date	October 17, 2003
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OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS			
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		Chumakov et al., 1992, "Continuum of Overlapping Clones Spanning the Entire Human Chromosome 21q", Nature 359: 380-387.	
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		Guo et al., 1993, "Sizing of Large DNA Molecules by Hook Formation in a Loose Matrix", J. Biomol. Struct. and Dynam. 11: 1-10.	
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				Application Number	10/668,416
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				First Named Inventor	David Charles Schwartz
				Group Art Unit	
				Examiner Name	
Sheet	4	of	7	Attorney Docket Number	960296.00129

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS			
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		Gurrieri et al., 1990, "Imaging of Kinked Configurations of DNA Molecules Undergoing Orthogonal Field Alternating Gel Electrophoresis by Fluorescence Microscopy", Biochemistry 2: 3396-3401.	
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		Link and Olson, 1991, "Physical Map of the <i>Saccharomyces cerevisiae</i> Genome at 110-Kilobase Resolution", <i>Genetics</i> 127: 681-698.	
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		Southern, 1975, "Detection of Specific Sequences among DNA Fragments Separated by Gel Electrophoresis", J. Mol. Biol. 98:503-517.	
		Stallings et al., 1990, "Physical Mapping of Human Chromosomes by Repetitive Sequence Fingerprinting", Proc. Natl. Acad. Sci. USA 87:6218-6222.	
		Stellwagen, 1988, "Effect of Pulsed and Reversing Electric Fields on the Orientation of Linear and Supercoiled DNA Molecules in Agarose Gels", Biochemistry 27:6417-6424.	
		Stellwagen, N.C., 1985, "Orientation of DNA Molecules in Agarose Gels by Pulsed Electric Fields", J. Biomo. Str. and Dynam. 3:299-314.	
		Sturn and Weill, 1989, "Direct Observation of DNA Chain Orientation and Relaxation by Electric Birefringence: Implications for the Mechanism of Separation During Pulsed-Field Gel Electrophoresis", Physical Rev. Letters 62:1484-1487	
		van den Engh et al., 1992, "Estimating Genomic Distance from DNA Sequence Location in Cell Nuclei by a Random Walk Model", Science 257:1410-1412.	
		Williams, 1977, "Use of Polyisine for Adsorption of Nucleic Acids and Enzymes to Electron Microscope Specimen Films", Proc. Natl. Acad. Sci. USA 74:2311-2315.	
		Woolf et al., 1988, "Mapping Genomic Organization by Field Inversion and Two Dimensional Gel Electrophoresis", Nucl. Acids. Res. 16:3863-3875.	
		Yanagida et al., 1983, "Dynamic Behaviors of DNA Molecules in Solution..." Cold Spring Harbor Symp. Quant. Biol. 47:177-187.	
		Zenhausen et al., 1992, "Imaging of DNA by Scanning Force Microscopy", J. Struct. Biol. 108:69-73.	
		Zubay, 1988, Biochemistry (Macmillan Publishing Company, New York) pp. 918-919.	

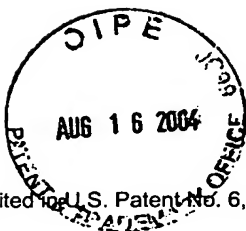
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Prior Art Cited for U.S. Patent No. 6,294,136

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary)	Complete if Known	
	Application Number	10/688,416
	Filing Date	October 17, 2003
	First Named Inventor	David Charles Schwartz
	Art Unit	
	Examiner Name	
Sheet 1 of 8	Attorney Docket Number	960296.00129

U. S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code ² (if known)			
		US- 4,473,452	Sep., 1984	Cantor et al.	204/180
		US- 4,695,548	Sep., 1987	Cantor et al.	435/179
		US- 4,737,251	Apr., 1988	Carle et al.	204/182
		US- 4,767,700	Aug., 1988	Wallace	435/6
		US- 4,870,004	Sep., 1989	Conroy et al.	435/6
		US- 5,059,294	Oct., 1991	Lizardi	204/458
		US- 5,079,169	Jan., 1992	Chu et al.	436/174
		US- 5,314,829	May, 1994	Coles	436/165
		US- 5,380,833	Jan., 1995	Urdea	536/22
		US- 5,720,928	Feb., 1998	Schwartz	422/186
		US- 5,985,549	Nov., 1999	Singer et al.	435/6
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		Country Code ³ Number ⁴ Kind Code ⁵ (if known)				
		FR 2605472	Apr., 1988	Alain Bouillet		
		WO 84/02001	May, 1984	Trustees of Columbia Univers		
		WO 87/01955	Sep., 1987	Washington University		

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		Filing Date	October 17, 2003		
		First Named Inventor	David Charles Schwartz		
		Art Unit			
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Sheet	2	of	8	Attorney Docket Number	960296.00129

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		Allison et al., 1992, "Immobilization of DNA for Scanning Probe Microscopy", Proc. Natl. Acad. Sci. USA 89: 10129-10133.	
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		Chattoraj et al., 1978, "DNA Coordination with Polyamines", J. Mol. Biol. 121: 327-337.	

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		Application Number	10/668,416
		Filing Date	October 17, 2003
		First Named Inventor	David Charles Schwartz
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Sheet	3	of	8
		Attorney Docket Number	960296.00129

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		Guo et al., 1993, "Sizing of Large DNA Molecules by Hook Formation in a Loose Matrix", J. Biomol. Struct. and Dynam. 11: 1-10.	

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		Filing Date	October 17, 2003		
		First Named Inventor	David Charles Schwartz		
		Group Art Unit			
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Sheet	4	of	8	Attorney Docket Number	960296.00129

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				Filing Date	October 17, 2003
				First Named Inventor	David Charles Schwartz
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		Link and Olson, 1991, "Physical Map of the Saccharomyces cerevisiae Genome at 110-Kilobase Resolution", Genetics 127: 681-698.	
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		Perkins et al., 1994, "Direct Observation of Tube-like Motion of a Single Polymer Chain", Science 264: 819-822.	

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		Poddar and Maniloff, 1986, "Chromosome Analysis by Two-Dimensional Fingerprinting", Gene 49: 93-102.	
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		van den Engh et al., 1992, "Estimating Genomic Distance from DNA Sequence Location in Cell Nuclei by a Random Walk Model", Science 257: 1410-1412.	
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		Zubay, 1988, Biochemistry (Macmillan Publishing Company, New York) pp. 918-919.	

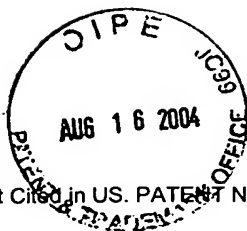
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary)	Complete if Known	
	Application Number	10/688,416
	Filing Date	October 17, 2003
	First Named Inventor	David Charles Schwartz
	Art Unit	
	Examiner Name	
Sheet 1 of 9	Attorney Docket Number	960296.00129

U. S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code ² (if known)			
		US- 4,473,452	Sep., 1984	Cantor et al.	
		US- 4,695,548	Sep., 1987	Cantor et al.	
		US- 4,737,251	Apr., 1988	Carle et al.	
		US- 4,767,700	Aug., 1988	Wallace	
		US- 4,870,004	Sep., 1989	Conroy et al.	
		US- 5,059,294	Oct., 1991	Lizardi	
		US- 5,079,169	Jan., 1992	Chu et al.	
		US- 5,314,829	May, 1994	Coles	436/165
		US- 5,380,833	Jan., 1995	Urdea	
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		FR 2605472	Apr., 1988	Alain Bouillet		
		WO 84/02001	May, 1984	Trustees of Columbia Univers		
		WO 87/01955	Sep., 1987	Washington University		

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		Filing Date	October 17, 2003		
		First Named Inventor	David Charles Schwartz		
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Sheet	2	of	9	Attorney Docket Number	960296.00129

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		Chattoraj et al., "DNA Condensation with Polyamines", J. Mol. Biol. 121, (1978), pp.327-337.	
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		Hansma, H.G. et al., 1993, "Atomic force microscopy of DNA in aqueous solutions", Nucleic Acids Research 21: 505-512.	
		Karrasch, S. et al., 1993, "Covalent Binding of Biological Samples to Solid Supports for Scanning Probe Microscopy in Buffer Solution" Biophysical J. 65: 2437-2446.	
		Koob et al., 1992, "RecA-AC: single-site cleavage of plasmids and chromosomes at any predetermined restriction site" Nucleic Acids Res. 20:5831.	

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		Filing Date	October 17, 2003
		First Named Inventor	David Charles Schwartz
		Group Art Unit	
		Examiner Name	
Sheet 3 of 9	Attorney Docket Number	960296.00129	

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		Zenhausen et al., 1992, "Imaging of DNA by Scanning Force Microscopy", J. Struct. Biol. 108: 69-73.	
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		Chumakov et al., 1992, "Continuum of overlapping clones spanning the entire human chromosome 21q", Nature 359:380.	
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)		Application Number	10/688,416
		Filing Date	October 17, 2003
		First Named Inventor	David Charles Schwartz
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		Campbell et al., 1991, "Generation of a nested series of interstitial deletions in yeast artificial chromosomes carrying human DNA", Proc. Natl. Acad. Sci. USA 88:5744.	
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		Burke et al., 1987, "Cloning of Large Segments of Exogenous DNA into Yeast by Means of Artificial Chromosome Vectors", Science 236: 806.	
		Church and Gilbert, 1984, "Genomic sequencing", Proc. Natl. Acad. Sci. USA 81: 1991.	

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				Filing Date	October 17, 2003
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Sheet	5	of	9	Attorney Docket Number	960296.00129

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		Luckham and Klein, 1984, "Forces between Mica Surfaces Bearing adsorbed Polyelectrolyte, Poly-L-lysine, in Aqueous Media", Chem. Soc. Faraday Trans. I, 80: 865-878.	
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				First Named Inventor	David Charles Schwartz
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Sheet	6	of	9	Attorney Docket Number	960296.00129

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		Romling et al., 1989, "A physical genome map of Pseudomonas aeruginosa", EMBO J. 8(13): 4081-4089.	
		Smith et al., 1989, "Observation of Individual DNA Molecules Undergoing Gel Electrophoresis", Science 242: 203.	
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		Zubay, Biochemistry, 1988, pp. 918-919.	
		Kucherlapati et al., Genetic Recombination, 1988, pp. 92-106.	
		Smith et al., "Observation of Individual DNA Molecules Undergoing Gel Electrophoresis", Science 242, Jan. 13, 1989 pp. 203-206.	
		Carle et al., "Electrophoretic Separations of Large DNA molecules...", Science, Apr. 4, 1986, pp. 65-68.	
		Dev. et al., "Techniques for Chromosome Analysis", Techniques in SOmatic Cell Genetics, edited by Shay, 1982, pp. 493-503.	
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